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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,516	10/23/2003	Yoshihiro Takada	03560.003379.	6065
5514	7590	11/23/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			GARCIA JR, RENE	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/690,516

Applicant(s)

TAKADA ET AL.

Examiner

Rene Garcia, Jr.

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claims 1 & 8 makes reference to “drive pulses” (has not been previously claimed within respective claims).

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-6, 8 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. (US 2002/0041300) in view of Yang et al. (US 6,527,355).

#### **Iwasaki et al. disclose the following claimed limitations:**

\*regarding claims 1 and 8, a recording apparatus (paragraph 0076; fig. 1) for recording an image by applying ink on a recording medium (paragraph 0076; fig. 1 ref. P) with at least one recording head/1/ (paragraph 0005; fig. 1)

\*timer for measuring a recording downtime when an image-recording operation of the recording head is interrupted during the recording operation and is then resumed (paragraph 0023; fig. 7 Steps: S1002 thru S1009)

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\*control means for performing a temperature control of the recording head before the resumption of the recording operation, in accordance with the length of the recording downtime measured by said timer (fig. 7; Steps: S1002 thru S1009)

\*regarding claims 3 and 10, an electrothermal conversion member/**electrothermal converting elements**/ (paragraph 0081; fig. 4 ref. 100a) disposed in the recording head/**1**/ is heated to the extent of not causing ink in the recording head to be discharged therefrom (paragraph 0086).

\*regarding claims 4 and 11, temperature sensor/**diode sensor**/ (fig. 12) for detecting a temperature of the recording head/**1**/ (paragraph 0081), wherein, with said control means, the recording head is heated before the resumption of the recording operation up to a temperature of the recording head detected by said temperature sensor/**diode sensor**/ before the interruption of the recording operation and is further heated in accordance with the length of the measured recording downtime (fig. 7).

\*regarding claims 5, 12 and 13, temperature sensor/**diode sensor**/ (fig. 12) for detecting temperatures of the recording head/**1**/ (paragraph 0081) before and after the interruption of the recording operation, wherein, with said control means, the temperature control of the recording head is performed before the resumption of the recording operation in accordance with detected temperatures before and after the interruption of the recording operation and is further performed in accordance with the length of a recording downtime detected thereafter (fig. 7 & fig. 12).

\*further regarding claims 6 and 14, wherein the at least one recording head comprises a plurality of recording heads for different recording ink colors (paragraph 0005)

**Iwasaki et al. does not disclose the following claimed limitations:**

\*regarding claims 1 and 8, the number of drive pulses to be applied to the recording head is increased as the recording downtime becomes longer

**Yang et al. disclose the following:**

\*regarding claims 1 and 8, the number of drive pulses to be applied to the recording head is increased as the recording downtime becomes longer (fig. 3; col. 5, line 61 – col. 6, line 18 & col. 3, line 64 – col. 4, line 5)

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize the number of drive pulses to be applied to the recording head is increased as the recording downtime becomes longer as taught by Yang et al. into Iwasaki et al. for the purpose of preventing banding.

4. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. (US PG PUB 2002/0041300) as modified by Yang et al. (US 6,527,355) as applied to claims 1 and 8 above, and further in view of Numata et al. (US 6,126,266).

**Iwasaki et al. as modified by Yang et al. disclose the claimed limitations except for the following:**

\*regarding claims 2 and 9, interruption of the recording operation during an image-recording operation is executed midway through a recording operation of a continuous image.

**Numata et al. disclose the following:**

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\* regarding claims 2 and 9, interruption of the recording operation during an image-recording operation is executed midway through a recording operation of a continuous image (col. 38, lines 28-32; replacing heads midway of recording operation is an interruption)

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize interrupting a recording operation midway replacing a recording head as taught by Numata et al. into Iwasaki et al. as modified by Yang et al. for the purpose of temporary use of a recording head in place of an original head.

### ***Response to Arguments***

5. Applicant's arguments with respect to claim 1-14 have been considered but are moot in view of the new ground(s) of rejection. Yang et al. discloses the number of drive pulses to be applied to the recording head is increased as the recording downtime becomes longer.

### ***Conclusion***

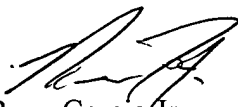
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Usui (US 6,820,955) disclose a timer for measuring downtime (power-off state). Suzuki et al. (US 5,689,292) disclose timer and print head temperature control means. Otsuka et al. (US 6,139,125) disclose temperature control, a timer for measuring of downtime and control of pulse width in accordance with temperature control means. Otsuka et al. (US 6,193,344) disclose temperature control, a timer for measuring of downtime and control of pulse width in accordance with temperature control means. Kato (US 6,406,113) disclose temperature control, use of an interrupt timer. Kanematsu (US 6,767,080) disclose a timer for temperature control and means to control a pulse signal in accordance with the temperature.

***Communications with the USPTO***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rene Garcia, Jr. whose telephone number is (571) 272-5980. The examiner can normally be reached on M-F 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Rene Garcia Jr  
17 November 2005

 11/05  
K. FEGANS  
PRIMARY EXAMINER